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10/643,344

Filing Date

08/19/2003

First Named Inventor

Norman WEINBERG et al.

Art Unit

1742

Examiner Name

Harry D. Wilkins, III

Attorney Docket Number

ESP:106eUS

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Date

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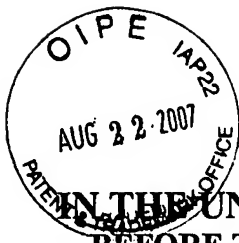
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicants: **N. WEINBERG et al.**

U.S. Patent Application No. **10/643,344**

Filed: **August 19, 2003**

Examiner: **WILKINS III, H. D.**

Group Art Unit: **1742**

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*Barbara Benton* 8/20/07  
Date

For: **APPARATUS FOR ELECTROLYSIS OF WATER**

**REPLY BRIEF UNDER 37 CFR §41.41**

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Sir:

This brief is in reply to the Examiner Answer of June 28, 2007.

This reply brief is in compliance with 37 CFR 41.41(a)(2), and does not contain any new or non-admitted amendment or any new or non-admitted affidavit or other evidence.

It is courteously requested that the Board consider the following remarks/arguments in response to the Examiner's Answer of June 28, 2007:

**EXAMINER'S ANSWER:**

Pages 3-4 of the Examiner's Answer in connection with the rejection of claims 28-30 and 33-41 as unpatentable over Pons et al ( WO 90/10935) in view of Spaepen et al (US Pat. 3,944,473), urge that Spaepen et al teach at Col 4, lines 23-35 that that the principle of the invention would aptly apply to any electrocatalytic reaction where the at least two reactions occur at an electrode and the overall

reaction included a series of partial reactions occurring at the electrode, the voltage pulse regime could be used to favor one reaction product verses another to preferentially form a desired product opposed to forming the undesired product.

**APPELLANTS' REPLY:**

The Examiner's argument above is courteously traversed on the grounds that Spaepen et al expressly teach at the conclusion (Col. 4, lines 34-35) of the paragraph referenced by the Examiner that: "Use thereof can be made with electro-organic synthesis."

In this regard, the methods of Spaepen et al are taught in Col. 1 as being useful (having utility) in electro-organic reactions, such as the oxidation of methanol on platinum; the oxidation of a material from the group formed by hydrogen, hydrazine and ammonia on an alloy. By contrast to the methods of Spaepen et al, the methods of Pons et al are limited to inorganic electrochemistry relating to the electrolysis of water, to form hydrogen, oxygen and heat. This distinction is also fully acknowledge by the Final Office Action of 8/2/06.

The methods of Pons et al simply do not relate to the field of electro-organic synthesis for which Spaepen et al expressly teach their method to possess utility.

Accordingly, the above argument appearing on page 4 of the Examiner's Answer that the methods of Spaepen et al would aptly apply to "any electrocatalytic reaction" is without factual support, and runs contrary to the express teachings of Spaepen et al.

This is but further evidence mitigating the combination of Pons et al taken with Spaepen et al in support of the rejection of the claims for reasons of obviousness under Section 103 of the Act.

**EXAMINER'S ANSWER:**

The bottom paragraph on page 4 of the Examiner's Answer urges: the pulsed power supply of Spaepen et al would have been capable of operating within the claimed operating parameters, and since these parameters are related to the manner of operation of the claimed apparatus, they have not been given patentable weight since the apparatus of

Pons et al in view of Spaepen et al would have been fully capable of operating in the claimed fashion.

#### **APPELLANTS' REPLY:**

The Examiner's Answer persists in concluding: the voltage regimes recited by claims 29-30 and 33-41 **relate to the manner of operation of the power supply, and consequently, have not been given patentable weight allegedly because the apparatus of Pons et al and Spaepen et al would have been capable of operating in the claimed fashion.**

Appellants courteously disagree.

In this regard, the second aspect of this appeal relates to dependent claims 29-30 and 33-41, wherein the Final Rejection (page 5 of the Final Office Action), and the Examiner's Answer continue to maintain : **the rejected claims have been given no patentable weight allegedly on the grounds the apparatus of Pons et al in combination with Spaepen et al would have been fully capable of operating in the claimed fashion.**

Claims 29-30 and 33-41 relate back directly or indirectly to claim 28.

Claim 28, Part (ii) **on appeal** expressly recites:

“(ii) a pulsed power supply for said electrochemical cell comprising means for generating a repeating sequence of voltages across said anode and said cathode, each said sequence including a first cell voltage regime consisting of a voltage sufficient to enhance cathodic absorption of hydrogen and a second voltage regime consisting of at least one voltage pulse which is at least two times the voltage of the first cell voltage regime in magnitude with a duration no greater than 0.10 seconds.”

Claim 28, part (ii) employs functional language sanctioned by 35 U.S.C. 112, sixth paragraph , namely..... means for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material or acts described in the specification, etc.

Claim 28, and claims dependent therefrom (claims 29-30 and 33-41) correctly recite **structural features** by employing means plus a statement of function or other

expression such as “operatively arranged” (See claims 30, 33, 34, 35, 38, 39, 40 and 41). Consequently, it is impermissible to simply avoid citation of prior art on the ground that such limitations are given no patentable weight.

In addition, similar functional expressions to “operatively arranged”, such as “operatively connected” are expressly authorized/approved by the MPEP Section 2173.05(g) (page 2100-219 and 220), and may not be properly disregarded, i.e., given no patentable weight.

MPEP 2173.05(g) relating to Functional Limitations state:

“A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step. >In *Innova/Pure Water Inc. v. Safari Water Filtration Sys. Inc.*, 381 F.3d 1111, 1117-20, 72 USPQ2d 1001, 1006-08 (Fed. Cir. 2004), the court noted that the claim term **“operatively connected”** is “a general descriptive claim term frequently used in patent drafting to reflect a functional relationship between claimed components,” that is, the term “means the claimed components must be connected in a way to perform a designated function.” “In the absence of modifiers, general descriptive terms are typically construed as having their full meaning.” *Id.* at 1118, 72 USPQ2d at 1006. In the patent claim at issue, “subject to any clear and unmistakable disavowal of claim scope, the term ‘**operatively connected**’ takes the full breath of its ordinary meaning, i.e., ‘said tube [is] operatively connected to said cap’ when the tube and cap are arranged in a manner capable of performing the function of filtering.” *Id.* at 1120, 72 USPQ2d at 1008.<” (*Emphasis added*)

Appellants respectfully disagree that the means and other functional limitations of claims 29-30 and 33-41 need not be given patentable weight. In addition, Pons et al and Spaepen et al, taken in combination, fail to teach **all** the structural features of the claimed pulsed power supply. But, even if they did, the rejection for reasons of obviousness over Pons et al in view of Spaepen et al would still not satisfy the requirement that the combined teachings are sufficient to conclude that the prior art is (**inherently**) capable of operating in the claimed fashion. **For such a rejection to be maintained, all the limitations of the claims, functional or otherwise must be fully met under 35 U.S.C. 102, in a single reference.**

Page 5 of the Examiner's Answer cites MPEP Sect. 2114, as authority that the manner of operating a claimed device does not differentiate an apparatus claim from the prior art.

Once again, however, the criteria for citation of this rule presupposes all the structural limitations of the claim are taught in a single prior art publication under 35 U.S.C. 102. The rejection on appeal is based on obviousness involving a combination of references, and it is crystal clear that neither Pons et al, nor Spaepen et al independently of one another teach all the structural limitations of the claims, including the means plus function and other functional limitations recited in the claims.

Once again, the Examiner has not shown how Pons et al and Spaepen et al, independently of one another, inherently meet the limitations, functional or otherwise, of dependent claims 29-30 and 33-41 to support the conclusion that the power supply taught by each would be capable of generating the recited voltage regimes.

#### **EXAMINER'S ANSWER:**

Page 7, part (g) of the Examiner's Answer urges the Board to disregard the prior decision of the Board in Appellants' parent application which struck down the rejection of Pons et al in view of Spaepen et al on grounds of obviousness under Section 103. The Examiner urges this because the prior Board decision failed to take into account the teachings of Spaepen et al at Col. 4, lines 23-39.

**APPELLANTS' REPLY:**

Appellants courteously disagree.

As previously pointed out above, Spaepen et al make clear at Col. 4, lines 34-35 their methods are intended for use in electro-organic synthesis, which would clearly exclude the electrolysis of water to produce hydrogen, oxygen and some heat in accordance with the teachings of Pons et al. Hence, whether or not the Board of Patent Appeals and Interferences considered Col. 4, lines 23-39 of Spaepen et al in the prior appeal would not change the outcome, i.e., the rejection would still not be affirmed.

**EXAMINER'S ANSWER:**

Page 8, par. (h) of the Examiner's Answer states claims 29-30 and 33-41 are patentable over the combination of Pons et al and Spaepen et al because these claims impart structure to the claimed invention.

**APPELLANTS' REPLY:**

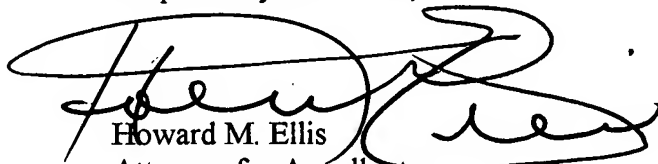
The final Office Action of August 2, 2006, provides only for the allowance of claims 42-48. Contrary to the Examiner's Answer, claims 28-30 and 33-41 were finally rejected in the Office Action of August 2, 2006.

**SUMMARY**

In view of the foregoing remarks and arguments, the rejection of the claims on appeal over Pons et al in view of Spaepen et al for reasons of obviousness under 35 U.S.C. 103(a) should be reversed. Accordingly, favorable consideration is courteously solicited.

August 20, 2007

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Howard M. Ellis', is written over a large, stylized circular flourish.

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